

The Journal of the American Association of Zoo Keepers, Inc.

AKF Animal Keepers' Forum



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American Association of Zoo Keepers, Inc.

The American Association of Zoo Keepers, Inc. exists to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.

ABOUT THE COVER

This month's cover photo comes to us from Jennifer Fair of the Greenville Zoo in South Carolina and features "Anahi" and "Enia", Brazilian ocelot kittens (*Leopardus pardalis*). These kittens were born on August 15, 2015 and were the first litter of parents "Oz" and "Evita". "Anahi" can now be found at the Salisbury Zoo in Maryland, and "Enia" is now living at the San Diego Zoo's Wild Animal Park.

Ocelots are a medium-sized felid, 6.6-18kg, that have a potential litter size of 1-4 (typically being 1-2 kittens). The kittens do not become independent until after a year. Ocelots are distributed across South America, Central America, Mexico, and a small population still exists in Southern Texas. Adults live solitary and are very territorial. They are mainly nocturnal and spend the majority of their time hunting on the ground, but they are good climbers and swimmers as well. The ocelot's diet consists of small mammals, birds, reptiles, and fish, but they can also consume larger prey items such as agouti, monkeys, and juvenile deer.

Ocelots are currently listed as Least Concern by the IUCN, but are listed as Endangered by the U.S. Fish and Wildlife Service. Ocelots are listed on CITES Appendix I and are nationally protected over much of their range. Habitat loss and fragmentation is the biggest threat to ocelots today, and with their long gestation and small litter size, recovery from population declines is slow. The AZA population of ocelots is managed as a Yellow SSP.

Articles sent to **Animal Keepers' Forum** will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for **AKF**. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the Editor. The Editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or e-mail contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone (330) 483-1104; FAX (330) 483-1444; e-mail is shane.good@aazk.org. If you have questions about submission guidelines, please contact the Editor. Submission guidelines are also found at: aazk.org/akf-submission-guidelines/.

Deadline for each regular issue is the 3rd of the preceding month. Dedicated issues may have separate deadline dates and will be noted by the Editor.

Articles printed do not necessarily reflect the opinions of the **AKF** staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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Mission Statement

The American Association of Zoo Keepers exists to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.

I am beginning with AAZK's Mission Statement to remind our members of our purpose. AAZK endeavors to educate and assist zoological personnel in their roles as animal caretakers, public educators, scientific researchers, wildlife conservationists and to promote their respective zoological institutions as cultural establishments, dedicated to the enrichment of human and natural resources.

Recently, the United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) removed animal welfare inspection reports from its website without prior notification. The USDA website states... "Editor's Note (Revised Feb. 7, 2017) The review of APHIS' website has been ongoing, and the agency is striving to balance the need for transparency with rules protecting individual privacy. In 2016, well before the change of Administration, APHIS decided to make adjustments to the posting of regulatory records. In addition, APHIS is currently involved in litigation concerning, among other issues, information posted on the agency's website. While the agency is vigorously defending against this litigation, in an abundance of caution, the agency is taking additional measures to protect individual privacy. These decisions are not final. Adjustments may be made regarding information appropriate for release and posting..." APHIS indicates this decision was made with guidance involving the Privacy Act and Freedom of Information Act.

AAZK disagrees with the decision to remove the animal welfare inspection reports from the USDA website. AAZK respects personal privacy. The reports may still be obtained through the Freedom of Information Act with personal information redacted, but by elongating the process, relevant animal welfare information will limit effective communication and transparency to the general public. These documents are an integral part in assuring high industry standards.

AAZK encourages the USDA to reconsider their changes in the processes and continue their commitment to being transparent with the inspection reports for facilities.

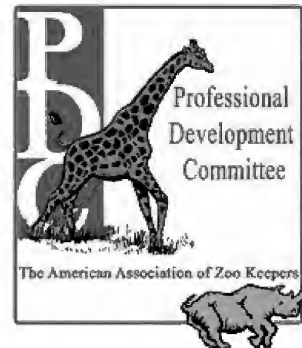
Thank you for your membership,

Penny Jolly
AAZK President

AAZK Professional Development Committee Final Call for Papers and Posters

**The 44th Annual AAZK National Conference
Washington, DC August 27-31, 2017.**

Conference Theme: “Keepers United in Saving Species”
Hosted by National Capital AAZK and the Smithsonian’s National Zoo



Final Call for Papers and Posters

The AAZK Professional Development Committee is pleased to announce the final call for papers and posters for the 2017 National AAZK Conference hosted by National Capital AAZK. The Host Chapter has chosen the theme “Keepers United in Saving Species”, which will highlight how zoo and aquarium professionals work together in protecting wildlife through various conservation efforts.

Deadline for Submission of Abstracts for Papers and Posters: 1 May 2017

Authors will be notified regarding acceptance by 1 June 2017.

There is a **NEW PROCEDURE** for submissions this year.

How to Submit Your Abstract for Consideration:

- Go to the 2017 conference website http://www.ncaazk.org/2017_conference/papers_posters_workshops/
- Download the Application for either poster or paper
- Fill out completely and submit to pdcc@azk.org no later than **May 1st**

NOTE: If you do not use the new application, your abstract will not be reviewed.

Papers

Papers should focus on the conference theme including innovative approaches and best practices in the areas of husbandry, animal welfare, conservation, education, enrichment and training.

Authors will be allowed 15 minutes for a presentation with five minutes of Q & A immediately following.

Posters

Posters will be on display throughout the conference with a scheduled Q & A session with the author; time to be determined. Posters will be judged by members of AAZK PDC on criteria such as adherence to the conference theme, innovation, and poster layout and organization. Certificates will be awarded to winning posters at the designated Poster Session.

COMING EVENTS

Post upcoming events here!
e-mail shane.good@aazk.org

June 5-9, 2017

Practical Zoo Nutrition Management

Front Royal, VA

Hosted by the Smithsonian-Mason School of Conservation and the National Zoological Park
For more information go to:
<http://smconservation.gmu.edu/programs/graduate-and-professional/professional-training-courses/nutrition/>

July 12-22, 2017

International Herpetological Symposium

Rodeo, NM

Hosted by Chiricahua Desert Museum

For more information go to:
internationalherpetologicalsymposium.com/40th-annual-symposium/

July 31 - Aug 4, 2017

Elephants 360: Advancing Health and Wellness

Cleveland, OH

Hosted by Cleveland Metroparks Zoo

For more information go to:
ClevelandZooSociety.org/Elephants360

August 7-11, 2017

International Rhino Keeper Workshop

Denver, CO

Hosted by Denver Zoo

For more information go to:
rhinokeeperassociation.org/

August 28-30, 2017

Old World Monkey Husbandry Workshop

Columbus, OH

Hosted by Columbus Zoo

For more information contact
Audra Meinelt:
Audra.Meinelt@columbuszoo.org

September 5-7, 2017

Canid and Hyaenid TAG Husbandry Course

Cincinnati, OH

Hosted by Cincinnati Zoo

For more information go to:
<http://cincinnati zoo.org/canid-and-hyaenid-tag-husbandry-course/>

September 9-13, 2017

AZA Annual Conference

Indianapolis, IN

Hosted by Indianapolis Zoo

For more information go to:
www.aza.org/conferences-meetings

September 26-30, 2017

New World Primate Husbandry Workshop

Colorado Springs, CO

Hosted by Cheyenne Mountain Zoo

To register go to:
<https://www.bpzoo.org/nwptag-conference-registration/>

October 1-4, 2017

Orangutan SSP Husbandry Workshop

New Orleans, Louisiana

Hosted by Audubon Zoo

For more information go to:
<http://audubonnatureinstitute.org/conservation-programs/1309-orangutan-ssp-workshop>



August 27-31, 2017

AAZK National Conference Washington, D.C.

*Hosted by the National
Capital AAZK Chapter and
Smithsonian's National Zoo*

facebook.com/AAZK2017

October 4-5, 2017

Coraciiformes Husbandry Workshop

Nashville, TN

Hosted by Nashville Zoo at Grassmere

Facebook and Registration
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ARC Update!

News from the brand new **AAZK Resource Committee (ARC)**!

For AAZK's 50th anniversary, ARC is debuting *AAZK Golden Trivia*! Questions will be in each issue of the AKF and AAZK's social media in this graphic and cover an array of AAZK topics. There **WILL** be prizes - and ARC recommends you remember the answers for the 2017 National Conference in Washington, D.C.!

Keep an eye out for helpful information for National Zoo Keeper Week 2017 too – ARC will be sending planning packets via email next month!



2017 Bowling for Rhinos Conservation Resource Grant

Now accepting applications!

The AAZK Conservation Committee is pleased to announce that we are now accepting applications for the Bowling For Rhinos Conservation Resource Fund. The application materials and grant stipulations can be found on the AAZK website under the Bowling For Rhinos FAQ's page (www.aazk.org/bowling-for-rhinos/bowling-for-rhinos-faq).

Applications are due 1 June 2017. Specific questions can be obtained by contacting maryann.cisneros@aazk.org.

ATTENTION Members!

AAZK Individual Member Demographic Survey

Please take a few minutes to tell us about yourself, education and salary so that AAZK can professionally respond to media-related questions regarding the professions of animal keepers and aquarists.

Visit Surveymonkey and copy/paste the following link:

<https://www.surveymonkey.com/r/ZXWTNWD>

Completing this survey will provide important information regarding our profession while also providing foundation information as AAZK begins the process of applying for operational grants.



Hand-rearing, Reintroduction and Veterinary Management of a Female Gaur Calf

Joe Nappi, Wild Animal Keeper, Mammal Department
Wildlife Conservation Society/Bronx Zoo
Bronx, New York

Gaur (*Bos gaurus*) are the largest species of extant wild cattle, with bulls weighing up to 907 kg (2,000 lbs), and reaching a shoulder height of over six feet (Choudhury, 2002). Gaur are listed as vulnerable due to habitat loss and over hunting, and are found in scattered populations throughout Southeast Asia (IUCN, 2015). The Bronx Zoo currently houses a herd of seventeen gaur, exhibited within Wild Asia, an area of the park which features much of

the zoo's large ungulate exhibits and seeks to replicate the forests, meadows and mud wallows found throughout the continent of Asia. On October 13, 2014, a new born gaur calf was discovered among the herd. Keepers spent time watching the calf's interactions with the herd, however no maternal interactions were seen from any of the females, the calf was not observed nursing and also had difficulty standing. The following day, the calf was

separated from the herd for a neonatal exam, at which time it was determined that the calf was not nursing based on her bloodwork (low blood glucose, negative gluteraldehyde test and low total protein), as well as the calf having an overall weak demeanor. It was decided to remove the calf from the herd for hand-rearing.

The female gaur calf weighed 26.5 kg (58.6 lbs) and was taken to the Bronx Zoo's Wildlife Health Center, where her umbilicus was dipped in betadine, and she was treated with antibiotics and received subcutaneous fluids. Hospital staff began the process of training the calf to drink from a bottle. Initially, the bottle-fed formula consisted of a mixture of 5 ounces of colostrum mixed with 1 liter of whole cow's milk. Hospital staff also stimulated the calf to assist her in defecating (Fig. 1). The following day, the calf began to receive three feedings of 1000 ml of whole cow's milk and 5 ounces of colostrum. By the second day of hand-rearing, the calf was already beginning to accept drinking from a bottle, at which time hospital staff began training the calf to drink from a wall-mounted bottle rack to help limit the calf's association with people (Fig. 1).

After spending approximately one week at the Wildlife Health Center, the gaur calf was returned back to the zoo's Wild Asia complex for care by mammal keeper staff. The calf, named Pocahontas, was housed by herself in a hoofstock stall adjacent to the adult gaur herd. By this point the calf was receiving two feedings a day of 1750 ml made up of a custom designed milk formula (BMC1), whole cow's milk and colostrum. The BMC1 milk replacer consisted of 100 ml whole cow's milk to 1 gram Resource Beneprotein, which added a source of protein to the calf's diet, and 4 grams of Multimilk, a carbohydrate-free milk replacer (Eidlin, 2009). The calf was weighed daily by being placed in a crate and then on a scale. At approximately 20 days of age, keeper staff began having the calf follow them to the gaur holding corral, and feeding her first bottle of the day in this much larger space while the adult herd was shifted into another corral. This allowed her to become more comfortable with both smelling the adult gaur and spending time in this new corral before being reintroduced to the herd. The zoo's maintenance staff installed a 'creep,' a small calf-sized opening between the gaur corral and an adjacent, empty corral to assist in the future reintroduction of the calf with her herd mates (Fig. 2). This was set-up by attaching a sheet of wood in the



Fig. 1: Keeper stimulating calf to defecate while she drinks from a bottle rack.



Fig. 2: Calf-sized 'creep' utilized during the reintroduction process.



Fig. 3: Calf interacting with adult gaur during the final trial introduction day before being fully integrated with the herd.

frame of an existing doorway to lower the height of the opening. A pin was installed to allow the door to be locked open just wide enough to allow the calf to comfortably pass through to the empty corral should she be intimidated or agressed by the herd.

When the calf turned approximately one month of age, she was given access to the adult herd of gaur for the first time. The calf immediately went through the creep to investigate her herd mates, but was quickly chased around the corral by the inquisitive adult gaur. The creep was effective as the calf ran into the adjoining empty corral. Introductions were a slow process as the calf was initially reluctant to re-enter the corral with the adult animals. Keeper staff continued to give the calf access to the herd each day, and continued to feed her first bottle of the day by calling the calf into the adult gaur corral and feeding her through an additional cracked door. Over time, this helped the calf gain more confidence with entering the corral with the adult animals (Fig. 3).

Midway through the reintroduction process, Pocahontas was observed producing very loose stool, at which time introductions were

halted with the herd. The calf's bottle was diluted temporarily with 50% water to help her to re-hydrate from the bout of loose stool that lasted several days. Reintroductions resumed approximately one week later. At a month and half old, the calf was receiving two bottles of 3500 ml BMC1 per day and was observed beginning to eat grain and hay for the first time. Over time, Pocahontas gained

She quickly learned to shift between corrals and after spending the winter in the off-exhibit gaur management space, she transitioned very readily to going on exhibit with the adult herd.

more confidence around the adult animals, and would allow them to approach her, and later would initiate physical contact with them herself. On December 2, 2014, after careful observation and the conclusion that the calf was comfortable with the herd, Pocahontas was transitioned to living full-time with the adult gaur. Keeper staff continued to bottle feed the calf twice a day by cracking a corral

door and placing the bottle in a wall-mounted bottle rack. By two months of age Pocahontas was transitioned from drinking the BMC1 formula to drinking 3000 ml of whole cow's milk twice a day. The calf was brought in to an adjoining corral every other day to be weighed. Pocahontas weighed 62.9 kg (138.8 lbs) the day she was fully integrated with the herd.

On January 25, 2015, keeper staff first reported seeing what appeared to be a loose ball of skin on the abdomen of the calf in front of her left rear leg. Within three days, the area became very firm to the touch and was reported as swelling to the size of a softball (Fig. 4). While keeper staff had begun to wean Pocahontas off the bottle, it was decided to halt the weaning process to keep the calf tractable. On March 9, 2015, Pocahontas was immobilized and was taken back to the Wildlife Health Center where it was discovered the swelling was a seroma, a build-up of fluid under the skin. It is hypothesized that the seroma may have occurred as a result of trauma received by the calf getting hit by the horns of an inquisitive adult gaur, which was seen by keeper staff on multiple occasions. The calf was anesthetized to lance, drain, and suture close the seroma. Long-acting antibiotics were administered at the time of surgery. The calf was then returned to Wild Asia where she was once again placed in a hoofstock stall by herself. Two days later the calf was returned to living with the adult gaur herd. Four days after the seroma surgery, the seroma recurred and was drained with no restraint by veterinary staff as keepers fed the calf her bottle. Vet staff returned three days later and injected the calf with another long-lasting antibiotic. Keeper staff were instructed to palpate the seroma site daily to toughen the area. Nine days later the seroma was resolved. The calf was only receiving two feedings of 1500 ml of whole cow's milk per day by this point, and was weaned from the bottle the following day.

While it was a slow process, Pocahontas transitioned very well to living with the adult gaur herd. She quickly learned to shift between corrals and after spending the winter in the off-exhibit gaur management space, she transitioned very readily to going on exhibit with the adult herd. She is now fully integrated into the dynamics of the herd and no longer seeks the companionship of the keeper staff. It is difficult to tell that she is even a hand-reared animal. Pocahontas can now be seen in the zoo's Angkor Forest,




Fig. 4: Calf at approximately four months of age and two days before her seroma surgery. The seroma is located on her abdomen in front of her left rear leg

a mixed-species exhibit of gaur and Eld's deer (*Rucervus eldii*) seen by monorail within the Bronx Zoo's Wild Asia. Special thanks is extended to Wildlife Health Center staff for stabilizing Pocahontas after she was rejected by her dam, the zoo's maintenance staff for designing a gaur calf-sized creep, Mammal Department managers, as well Wild Asia keeper staff for the daily care of Pocahontas.

Photos courtesy of Joe Nappi.

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2017
Cleveland Metroparks Zoo
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\$500 per person. National and International Scholarships available.
Additional registration information to follow.

Target Audience:

Staff at all levels employed in the care of elephants

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Cinco de Gato: Raising Awareness and Funds for Texas Ocelot Conservation

Shasta Bray, Manager of Interpretive Exhibits, Visitor Research,
Conservation Communications & Fun
Cincinnati Zoo & Botanical Garden
Cincinnati, Ohio

Ocelots in the United States? Yes, they do exist! Though more commonly found south of the U.S. border, a small endangered population of about 80 ocelots (*Leopardus pardalis albescens*) still survives in South Texas on the Laguna Atascosa National Wildlife Refuge (LANWR) and on private ranchlands. However, the future of this small, spotted cat in the United States is uncertain. About 95% of its thorny brush habitat has been lost, and vehicles have killed 40% of the ocelots studied over the past 30 years.



Ocelot. Photo by Tom Smylie, U.S. Fish and Wildlife Service

Photo 2. Three-week-old male ocelot found in a den site at LANWR, U.S. Fish and Wildlife Service



That's not to say that all hope is lost. With support from institutions participating in the Ocelot Species Survival Plan (SSP), the U.S. Fish and Wildlife Service and its partners are working to protect the Texas ocelot.

- ▶ Using GPS technology and camera traps, biologists monitor ocelots living on LANWR and private lands. Last year, researchers discovered the first ocelot den site found on a South Texas refuge in over 20 years, containing an adorable male cub. Camera trap photos of kittens on LANWR as well as on private ranchlands provide additional evidence that ocelots are reproducing, which is a good sign.
- ▶ To address the massive amount of thorn forest habitat that has been lost or fragmented, efforts to protect, restore and connect habitat are ongoing. Lands or conservation easements purchased from willing sellers are restored to natural habitat through invasive grass control and planting native trees and shrubs.
- ▶ The Texas Department of Transportation has begun installing under-the-road wildlife crossings to help keep ocelots off the roads near the refuge. The first ocelot crossing was installed on April 27, 2016, and the next one is underway. A series of eight crossings in total is planned for roads near the refuge.
- ▶ In addition to ongoing educational activities, an annual Ocelot Conservation Festival is held in South Texas to inspire locals to learn about ocelots and participate in their conservation. Since 2007, the Festival has featured a live ocelot ambassador from the Cincinnati Zoo & Botanical Garden. An Ocelot 5K Fun Run has coincided with the Festival the last couple of years as well.
- ▶ To bring much needed genetic diversity to the small remaining population, there is hope of translocating ocelots within Texas and from Mexico in the coming years.

SAVE THE TEXAS OCELOT

MEET THE OCELOT

MARKINGS
Spotted and striped

15-30LBS

HEADFIRST
Ocelots are born with their heads first, which is why they are called "headfirst" ocelots.

25
miles of territory

OCELOTS IN TROUBLE

ONCE RANGED
Ocelots were once common in the South Texas brushlands.

95%
OF THE OCELOT'S THORN BRUSH HABITAT HAS BEEN LOST.

40%
OF THE OCELOTS REMAINING IN THE SOUTH TEXAS REFUGE HAVE BEEN KILLED BY VEHICLES.

SAVING THE ENDANGERED OCELOT

THE U.S. FISH AND WILDLIFE SERVICE AND PARTNERS WORK TO PROTECT OCELOTS IN SOUTH TEXAS BY:

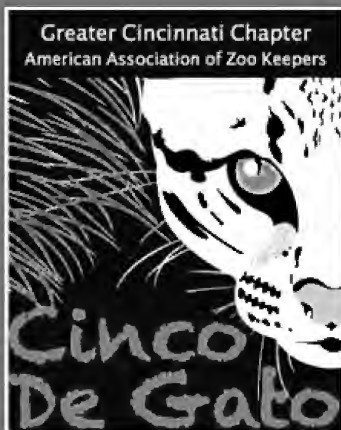
- MONITORING** Ocelot populations and habitat
- PROTECTING, RESTORING AND CONNECTING** ocelot habitat
- WORKING WITH** private landowners to protect ocelot habitat
- PLANNING** for the future of ocelots in South Texas and how to bring ocelots back to the wild

YOU CAN HELP!

ADOPT AN OCELOT

JOIN THE 5K

LEARN MORE



What is Cinco de Gato?

Cinco de Gato is an annual event that raises awareness and funds for Texas ocelot conservation through the Friends of Laguna Atascosa National Wildlife Refuge.

Why?

Recovery efforts are underway to save the Texas ocelot, of which there is a small endangered population of about 80 remaining, but these efforts are expensive and require support to move forward. Cinco de Gato is an opportunity to support tangible conservation action for a wildlife species in need in our own backyard.

When?

A play on Cinco de Mayo, Cinco de Gato typically takes place in early to mid-May.

Who?

Cinco de Gato was initiated by the Greater Cincinnati AAZK Chapter in 2015. In 2016, Nashville AAZK joined in with its own Cinco de Gato event, and we'd love to see other Chapters and institutions take up the cause!

How?

1. Partner with a local restaurant that is willing to host the event and donate a portion of the proceeds to the cause.
2. Set up supplemental fundraisers, e.g. t-shirt sales, silent auction, raffle, sponsors.
3. Create awareness materials and activities, e.g. posters, selfie props.
4. Market your event.
5. Eat, drink and have fun!
6. Send proceeds to Friends of Laguna Atascosa National Wildlife Refuge.



Raising funds at our first Cinco de Gato in 2015. Pizzelle Photography



Enjoying drinks while saving ocelots. Pizzelle Photography



Celebrating Cinco de Gato with a selfie. Pizzelle Photography



Sihi, the Zoo's ambassador ocelot, shows off her climbing skills at Cinco de Gato 2016. Pizzelle Photography

As the Education Advisor for the Ocelot SSP, I've participated in the Ocelot Conservation Festival, created a Save the Texas Ocelot informational poster, and established an ocelot month on the Felid TAG Facebook page, but I wanted to do something bigger that would generate support needed to continue and further Texas ocelot conservation. According to the Recovery Plan for the Ocelot, First Revision (2016), the estimated cost of recovery is in the millions. In 2014, our Greater Cincinnati Chapter of the American Association of Zoo Keepers (GCCAAZK) was starting to revive. Following a successful Bowling for Rhinos event that fall, I pitched a new event to our Chapter to raise awareness and funds for ocelot conservation and Cinco de Gato was born!

We held our first Cinco de Gato event (a play on Cinco de Mayo) at a local restaurant on May 8, 2015. The toughest part was nailing down a restaurant partner who was willing to let us use their venue and donate a portion of the proceeds from food and drink sales. Once we had the restaurant on lock, the rest was smooth sailing. In addition to proceeds from food and drink sales, we also sold merchandise and held a raffle. We downloaded and used the Square Register app so we could take credit cards, which was a big help. Merchandise included Cinco de Gato t-shirts, ocelot crossing signs, magnets painted by the Zoo's ambassador ocelots, and Endangered Species Chocolate bars. Raffle items included gift baskets, piñatas and a behind-the-scenes ocelot painting experience. In 2016, we added

ocelot earrings, framed photos, and feline-inspired cookies and cupcakes to the merchandise table. We also added a silent auction of ocelot-themed items (mug, tote bag and zippered pouch) to the event, which was held on May 15.

In addition to raising money, we shared the story of Texas ocelots through conversations with patrons and the display of the Save the Texas Ocelot poster. Live animal ambassadors from the Zoo, including Sihil the ocelot, made special appearances, too. And our Zoo Graphics department pitched in to make an ocelot selfie prop that made its rounds during the event (replacing the face painting activity we tried the first year).

We put a lot of effort into marketing the events. There's nothing worse than creating a fantastic event that no one knows about or attends! Internally, we shared the event invite with Zoo staff and volunteers through e-mail, meetings, and the Volunteer Newsletter. Events were created on the GCCAAZK Facebook page and shared widely by Chapter members. The Zoo allowed us to set up tables at some of its spring events, such as the Barrows Lecture Series and Party for the Planet concert, to spread the word to visitors. We also posted the event on the Zoo blog, which was then shared through the Zoo's various social media channels. This year, we also advertised it through a Facebook Live event with the ambassador ocelots and their trainers. Both years, the events were highly attended and raised close to \$4,000 in total that has been sent to Friends of LANWR to support Texas ocelot conservation.

In addition to planning for our third annual event, our goal is to inspire other AAZK Chapters to jump on board and host their own Cinco de Gato events. We can have a greater collective impact when we work together, as we've seen with Bowling for Rhinos. In 2016, the Nashville AAZK Chapter joined in with their own Cinco de Gato event (thanks, Nashville!). Won't you join us in 2017?

What's great is that this is a way to support endangered species conservation right here in our own backyard. I would be thrilled to talk to anyone who's interested in setting up their own event and share more information and tips on what's worked for us. Feel free to contact me at Shasta.bray@cincinnatiatzo.org.

References:

U.S. Fish and Wildlife Service. 2016. Recovery Plan for the Ocelot (*Leopardus pardalis*), First Revision. U.S. Fish and Wildlife Service, Southwest Region, Albuquerque, New Mexico.

Contact:

Get in touch for more information and advice, and to let us know your Chapter is planning to host an event. Shasta Bray, Shasta.bray@cincinnatiatzo.org, (513) 487-3325.



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Demonstrating What Comes Naturally: Showcasing the Natural Behaviors of Giraffe (*Giraffa camelopardalis*) at Lion Country Safari's Giraffe Encounter Exhibit.

Ashleigh Kandrac, Animal Curator and Kim Wuenstel, Lead Trainer
Lion Country Safari
Loxahatchee, FL

Introduction

Training demonstrations, keeper talks, and giraffe encounters are popular programs within zoological institutions. These programs allow zoos to increase educational messaging while simultaneously offering guests a unique and intimate experience to learn about a variety of topics, including: animal behavior, training, enrichment, and conservation. The training demonstration at Lion Country Safari's Giraffe Encounter Exhibit facilitates important educational opportunities for the public, where they learn about giraffe behavior, husbandry training, and conservation. As trainers cue giraffe through a variety of behaviors, a staff member interprets the actions that the giraffe are exhibiting and the significance of each behavior to the guests.

'Head Up'

As the trainers and giraffe set up for the training session, an announcer welcomes guests over a PA system and suggests prime viewing locations for the giraffe training demonstration, "Reaching New Heights." The announcer then briefly introduces the trainers and giraffe that will be participating in the demonstration and mentions that guests may continue to feed the giraffe that remain at the Giraffe Encounter Exhibit. Once the giraffe and trainers are set up at their designated demonstration stations, the trainer will cue the giraffe for the 'Head Up' behavior. This behavior requires the giraffe to stretch the neck and head upward while keeping the neck straight. They are to hold this position until bridged by the trainer. This behavior prompts the announcer to discuss various facts about giraffe height, vocalizations, and browsing. Examples of these facts include: 1) The giraffe is the tallest land mammal and can reach heights of 20 feet; 2) Giraffe are able to browse on leaves high into the treetops that other browsing species cannot reach, making their height advantageous due to the reduced competition for food; and 3) Giraffe are not mute, but seldom vocalize.

'Tongue Out'

As the trainers and giraffe transition from one behavior to the next, the announcer will utilize this time to discuss additional facts about Lion

Figure 1: Male Giraffe "Manowari" demonstrates the 'Head Up' behavior. 'Tongue Out'





Figure 2: Giraffe is cued to stretch tongue to target to demonstrate the 'Tongue Out' behavior.



Figure 3: Kim cues giraffe for the 'Head Down' behavior.

Country Safari's giraffe herd in particular, and giraffe behavior, biology, diet, and current status in the wild. When the 'Tongue Out' behavior is cued, the giraffe is expected to extend the tongue and touch the target with the end of his/her tongue until bridged by the trainer. Each giraffe that performs in the demonstration has a unique bridge to avoid confusion when working with multiple giraffe. The 'Tongue Out' behavior facilitates the opportunity to educate the public about interesting giraffe tongue facts. During the demonstration of this behavior, the announcer discusses the extraordinary length of the giraffe tongue, as well as the important role saliva plays in giraffe digestion. This behavior also allows the announcer to draw attention to the dark gray color of the giraffe tongue; the announcer discusses how the coloration acts as a natural form of sun protection to prevent it from burning while exposed to sunlight the majority of the day as they eat.

'Head Down'

The 'Head Down' behavior is the most impressive behavior for Lion Country Safari guests. This cue requires the giraffe to splay his/her front legs and touch nose to the ground until bridged by the trainer. This behavior demonstrates how a giraffe drinks from a natural water source in the wild. While the giraffe demonstrate this position, the announcer explains how the giraffe must assume this awkward position when they are in need of water. The 'Head Down' behavior facilitates the opportunity to also discuss other interesting facts regarding when a giraffe may be vulnerable to predators, such as: 1) Giraffe are nicknamed the 'watchtowers of the savannah,' as they often provide an early warning signal of danger to other animals; 2) Interesting and unique giraffe sleeping patterns; and 3) How a female giraffe gives birth, while simultaneously viewing a demonstration of this vulnerable position. The guests also learn how giraffe meet most of their water requirements through moisture in the vegetation that they eat. Finally the announcer discusses the giraffe's ability to drink large volumes of water in a single instance, which limits the need to assume this position too often.

'Back Up'

The 'Back Up' behavior demonstrates the unique, and awkward, gait of the giraffe as s/he walks backward. When cued to walk backwards, the giraffe is expected to continue walking backward until bridged. Once

bridged, the giraffe will walk forward to collect a reward from the trainer, enabling the guests to also witness the forward gait of the giraffe. As the giraffe walks backward, the announcer explains how s/he moves one foot at a time on opposite sides of his/her body. As the giraffe walks forward, s/he is demonstrating a 'lateral gait,' or pacing, as s/he swings both legs on one side of the body forward at the same time and then swings legs on the opposite side forward, and so on. The announcer will also discuss other interesting facts about giraffe locomotion including: 1) Giraffe can run up to speeds of 35 mph for short distances; 2) Giraffe will simultaneously cross both back legs outside of the front legs while running, adding a third type of gait naturally occurring in giraffe; and 3) A giraffe will utilize its head and neck as a counterweight while running.

'Foot Up'

The 'Foot Up' behaviors allow Lion Country Safari trainers to demonstrate both husbandry and natural behaviors. When cued to lift their left or right foot, the giraffe is expected to lift that particular front hoof until bridged. This allows the announcer to explain how this, as a husbandry behavior, allows staff to inspect the ever-important hoof health of the animal from a safe distance. The announcer will also explain how this behavior is tied to another behavior in which the giraffe will place each hoof into a box, located along a fence line, for easy and safe inspection. The announcer then discusses how, as a natural behavior, a giraffe will kick to defend itself or its young from any potential threat. Guests also learn: 1) That the powerful kick of a giraffe may come from any direction, and that a well-placed blow can kill the targeted threat; 2) Giraffe are known as even-toed ungulates (or hoofed mammal) due to the even number of functional toes on each foot; 3) Male giraffe hooves can reach 12" in diameter, roughly the size of a dinner plate; and 4) Giraffe legs can reach lengths of 6' long.

'Turn'

When cued to do the 'Turn' behavior, the giraffe is expected to swing his/her head to the left or right and touch the nose to the front shoulder. This behavior allows the announcer to explain neck length, neck flexibility, grooming, and the behavior known as 'necking.' While discussing neck length, the announcer explains neck vertebrae size, as well as the number of vertebrae that comprise a giraffe neck. This flexibility



Figure 4: “Manowari” demonstrates ‘Foot Up’ behavior on cue.



Figure 5: Kim cues ‘Manowari’ to swing neck around and touch nose to side in the ‘Turn’ behavior.

and the advantages to these practices. The announcer also explains the importance of trainer-animal relationships and that training is voluntary and intended to be a positive, enriching experience for all animals at Lion Country Safari.

‘Turn Around + Box’

This demonstration also highlights several trained husbandry behaviors, which allows the guests to learn about the incredible husbandry advantages created by positive reinforcement training. The announcer also discusses safety requirements for working around large and/or dangerous animals, and explains how these trained behaviors facilitate safety for Lion Country Safari staff. Husbandry behaviors demonstrated in the ‘Reaching New Heights’ show include: 1) ‘Hold:’ Stay at a designated position to explain how this behavior allows a trainer to grab a piece of equipment or consult with a fellow staff member while working with the animal; 2) ‘Target:’ Move to a designated location, allowing trainers to shift or separate animals; 3) ‘Turn:’ Turn on cue, which allows trainers to view the giraffe from all angles; and 4) ‘Box:’ place cued foot in hoof trimming window, which permits staff to inspect hoof health and provides an opportunity for hoof care when necessary. The announcer will use this opportunity to explain how positive reinforcement training allows for voluntary blood draws, injections, oral medications, and monitoring body weight.

Conclusion

The giraffe training demonstration at Lion Country Safari has provided staff with a platform to educate the public about giraffe, conservation, and the impressive accomplishments zoos and aquariums achieve through positive reinforcement training. With a combination of humor and education, the demonstration has become an enormous success and is growing in popularity with our guests. As this demonstration evolves, we have seen an increase in the time guests spend at the Giraffe Encounter Exhibit, increase in food and retail sales, and, best of all, an increase in conservation and giraffe-related questions from the public. With this growing popularity, Lion Country Safari is considering building bleachers to increase viewing areas for the demonstration and introducing new trainers, giraffe and other species to the demonstration.

This paper was originally presented at the 2016 International Giraffid Conference in Chicago, IL.

demonstration also allows the guests to envision giraffe self –grooming behaviors. While discussing ‘necking,’ or male giraffe competitions for dominance, the announcer draws the guests’ attention to their ossicones and explains:

1. How these structures enhance the individual’s blows to an opponent until a victor is established but they are generally not used for defending himself from a predator;
2. That ossicones are fur covered, horn-like protuberances made up of calcium deposits; and
3. That ossicones are unique to giraffe and okapi, the giraffe’s closest living relative.

‘Nose Pick’

The ‘Nose Pick’ behavior is a favorite among Lion Country Safari guests and, when demonstrated, is generally followed by a resounding “Ewww, gross!” from the onlookers. When cued to pick the right or left nostril, the giraffe will insert his/her tongue into the specified nostril until the bridge is delivered. As the giraffe are demonstrating ‘Nose Pick,’ the announcer uses this behavior to explain the giraffe’s prehensile, grasping tongue and its role in stripping leaves off of branches for food. The importance of keeping the nostrils free of dirt and debris is also explained while guests witness this self-grooming behavior.

As behaviors are demonstrated, the announcer also discusses cues, bridges, and rewards in order to explain positive reinforcement training



Figure 6: Giraffe is cued to insert tongue into left nostril to demonstrate 'Nose Pick' behavior to the public.

Acknowledgements:

The authors would like to thank Lisa Flood, Kimberly Good, Traci Backus, Tina Barbour and all the Wildlife staff at Lion Country Safari for your tireless dedication to excellent animal husbandry, training, enrichment, and conservation.

Photos: Photographs for this article by Ashleigh Kandrac. 🦒

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Painting For Conservation

Painting for conservation is a new initiative at Lion Country Safari and was implemented in January of 2016. This program seeks to raise money for giraffe conservation by utilizing the combined talents of our resident giraffe and trainers. Paintings are displayed and sold at the Giraffe Encounter Exhibit at Lion Country Safari.

Lion Country Safari is also working towards offering guests a Giraffe Painting Experience. This experience will allow guests to be involved as a giraffe paints a unique art piece composed of requested colors and objects selected by the participants. Participants will learn about training, giraffe conservation, and end the experience with the custom-made painting as a souvenir.

Both the Giraffe Painting Experience and the paintings available for sale are mentioned in the conservation messaging portion of the giraffe training demonstration and part of the proceeds generated by these endeavors will go to the Giraffe Conservation Foundation.

Lion Country Safari has also worked with the Giraffe Conservation Foundation to print Giraffe Conservation Guides for interested individuals to peruse.

BHC comments by Jay Pratte:

So. Not a lot to say this round, except GREAT JOB!!! Let's see, we covered training and appropriate steps. Using the natural history and behaviors of the animals to shape our program and the behaviors. Utilizing our husbandry behaviors to demonstrate how we work with animals, sharing our skills with the visitors without doing "tricks..." I love every part of this. But my absolute FAVORITE aspect of this Tale is this:

"...we have seen an increase in the time guests spend at the Giraffe Encounter Exhibit, [...] and, best of all, an increase in conservation and giraffe-related questions from the public."

This. So very much this. In AZA management training, one of the sessions had us read "The Experience Economy," which was a great book that basically discussed how current spending and visitor satisfaction, in ANY business or field, is based on how engaging the experience was during their visit or encounter. This is why we see so many institutions incorporating splash parks, feeding stations, rides, etc. Yet here is a way keepers can:

- ▶ Meet daily husbandry training and cognitive enrichment goals
- ▶ Build better relationships and trust with the animals
- ▶ Educate the visitors about the species we work with and why they're so interesting
- ▶ Teach about conservation and have visitors leave with a "how you can help" message
- ▶ Earn revenue for the department, institution, and conservation efforts
- ▶ Provide an engaging experience that visitors will remember and likely return for!

Great work, and thank you for sharing such an illuminating Tale! We want to hear your Training Tales – the good, the bad and the fabulous!

Please submit your "Training Tales" and experiences in operant conditioning to share with *Animal Keepers' Forum* readers. This opportunity provides a convenient outlet for you to exhibit your training challenges, methods and milestones with the AAZK member network. Please submit entries based on the following guidelines:

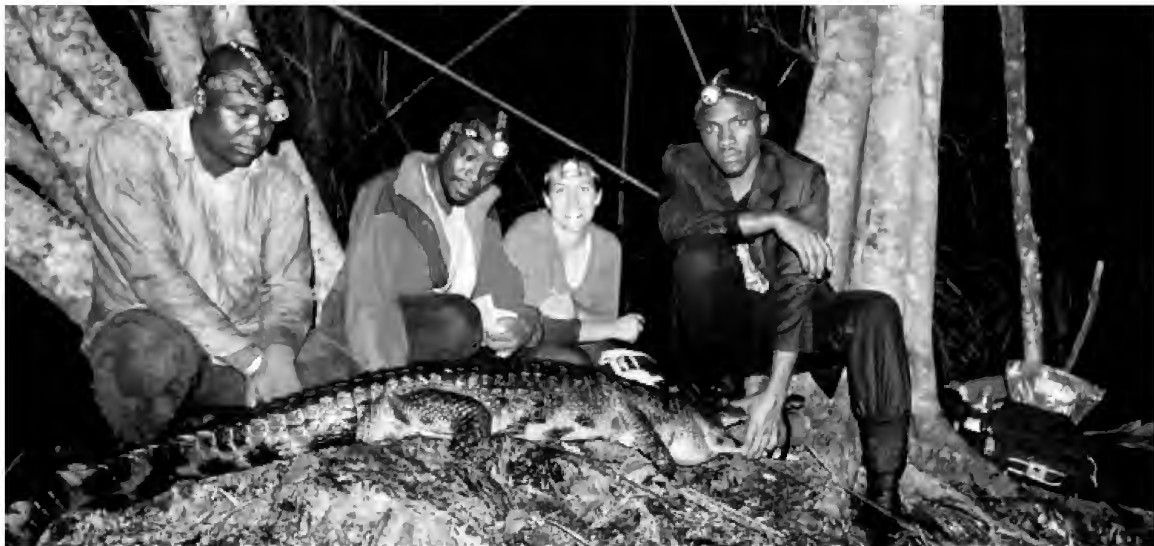
- ▶ Submit a brief description of a training project at your facility. These can be 500 words or less, in text or bullet points – it can be longer (up to 1000 words); however, short and simple descriptions with a few images are just as perfect. Details should include the following:
 - Define the training goal (what did you try to do and for what purpose?)
 - List important steps (How did you do it – include plans that changed along the way/what worked and what didn't work)
 - Timeline used (how long did it take)
 - Tips you learned along the way
- ▶ Include 3-5 digital photos that clearly depict the animal in the learning process or performing the desired goal (provide photo caption and photographer of each image). Photos need to be 300 dpi and at least 1200 x 1800 pixels.

PLEASE SEND SUBMISSIONS OR QUESTIONS TO:

Kim Kezer at kkezer@zoonewengland.com or

Shane Good at shane.good@aazk.org

(Use Training Tales Submission as the subject)



Progressing Crocodilian Captive Management at the Crocodile Advisory Group Meeting

Lauren Augustine

The Crocodile Advisory Group (CAG) is the Association of Zoo and Aquarium's first and oldest taxon advisory group sanctioned in 1986. This small group of zoo and aquarium professionals provide their expertise in crocodilian husbandry, breeding, education programs and captive management with the AZA community. The CAG aims to enhance and promote the preservation and understanding of the world's crocodilians and their habitat through excellence in education, animal management and scientific endeavor. Currently managing six programs of critically endangered crocodilian, the CAG facilitates cooperation and collaboration between zoos, the scientific community and the private sector.

This year's Crocodilian Advisory Group meeting was held at the Albuquerque Biological Park. Thanks to the AAZK professional development grant, I was able to attend this meeting and present my Master's research on Perivitelline membrane (PVM)-bound sperm detection for the conservation and management of captive Cuban crocodiles (*Crocodylus rhombifer*). My research focuses on using advanced reproductive technologies to better assess reproductive failures in captivity. In captivity, crocodilian egg fertility rates are generally assessed via banding, the process in which the vitelline membrane attaches to the inner shell membrane, creating an opaque spot atop the egg's shell. As the embryo develops, this spot expands to the width of the egg, forming an opaque band within the first seven days. It is often assumed that eggs that do not band are infertile, even though eggs may have died from early embryonic mortality (EEM) before the vitelline membrane attached. Distinguishing between infertility and EEM is important when assessing low fecundity in captive breeding programs. Eggs that are truly infertile could be the result of pair incompatibility or an individual infertility, whereas eggs that die from EEM may be the result of animal husbandry, such as diet or incubation method.

PVM-bound sperm detection is a technique in which sperm can be successfully located within an egg, confirming pair compatibility. This is particularly important in cases where pairs of crocodilians are repeatedly laying eggs that do not develop. Without further information the assumption that eggs are infertile due to pair incompatibility or individual infertility may lead to the unnecessary movement of animals within participating institutions. By utilizing PVM-bound sperm detection animal managers can now determine if animal moves are the appropriate course of action or if changes in the animal's current husbandry are needed. This technique has been successfully used on Cuban crocodiles, *Crocodylus rhombifer*, and slender-snouted crocodiles, *Mecistops cataphractus*, providing valuable information to animal managers.

At the CAG conference I was able to present my research and demonstrate the use of the technique to other crocodile managers. PVM-bound sperm detection is a new technique in crocodile management that will undoubtedly be a useful tool in crocodile conservation in the future. Furthermore, as the new Cuban crocodile studbook keeper I was able to connect with other professionals in my field who are involved in AZA programs. The CAG meeting was extremely valuable, connecting the captive management and conservation of crocodilians within AZA institutions to current field work, *in-situ* collaborations and education outreach programs.

I am very grateful to AAZK for funding my travel to this conference and the Albuquerque Biological Park for hosting an amazing conference. I would also like to thank the Smithsonian National Zoological Park and George Mason University for supporting my research. 🐊

CORRECTIONS

The AKF inadvertently omitted the x-axis labels in these figures from the article *Behavioral and Hormonal Impacts of Artificial Night Lighting for a Nocturnal Primate, *Perodicticus potto** featured in our Jan/Feb Issue. We apologize to the author for the error.

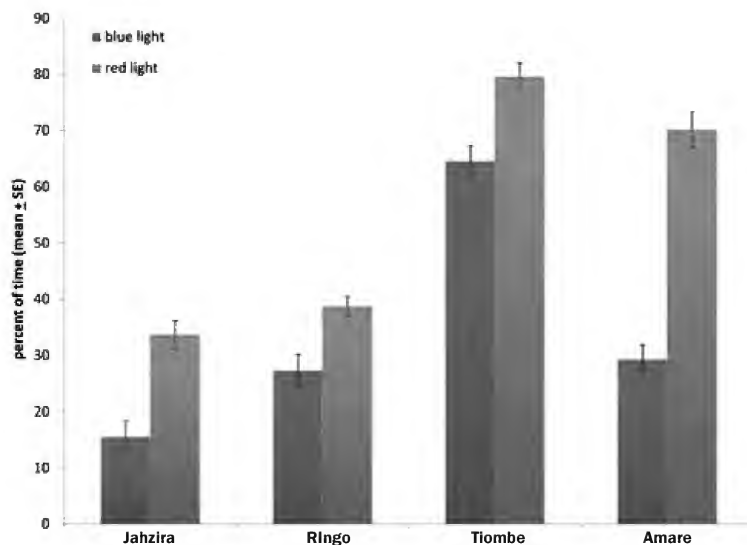


Figure 3. The mean \pm SE percent of time spent performing all active behaviors grouped together (social, move, feed, self-groom, and investigate) in each of four pottos in red and blue dark phase lighting. Standard error bars are based on number of observations in blue: red = 131: 257 for Jahzira; 159: 414 for Ringo; 225: 121 for Tiombe; and 225: 118 for Amare.

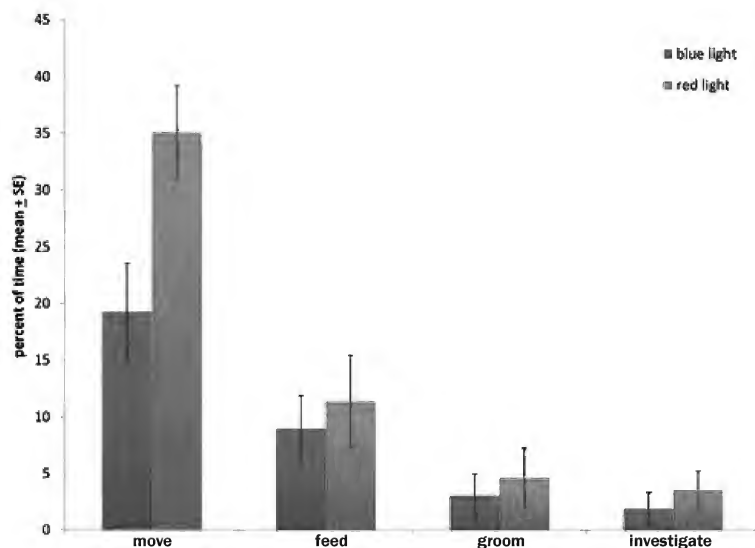


Figure 4. The percent of time (mean \pm SE) spent performing specific behaviors in pottos in red and blue dark phase lighting. Standard error bars are based on $n = 4$ pottos.

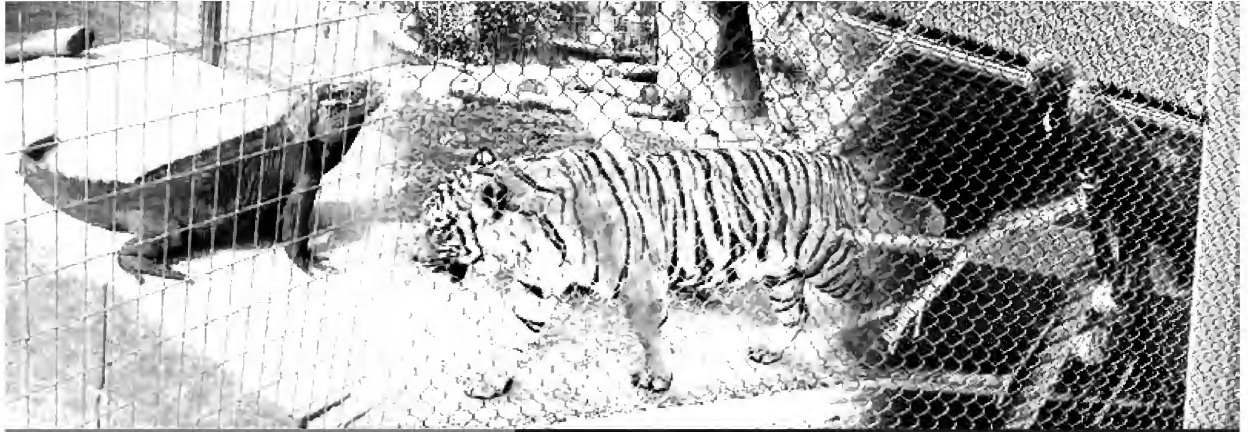


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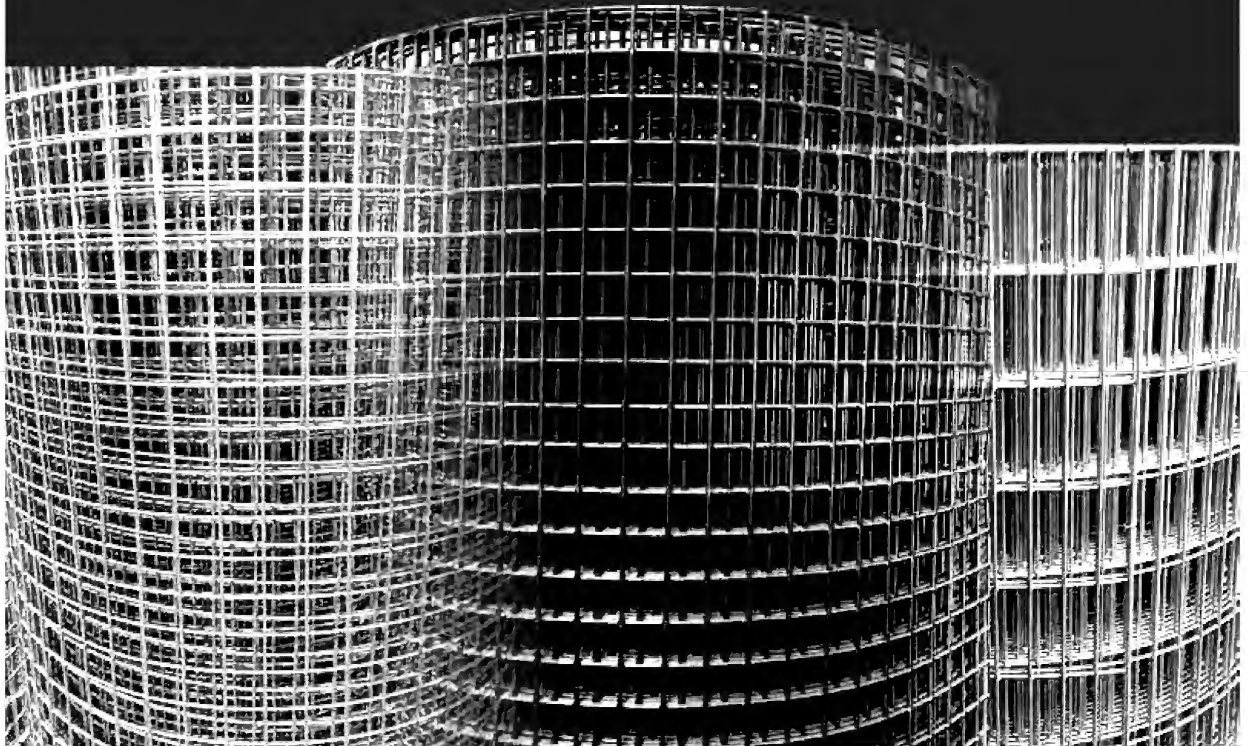
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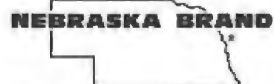


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